

What is claimed is:

1. An apparatus for inspecting defects of devices including: a sample chamber; a movable sample stage for holding a device sample inside the sample chamber; a focused ion beam generator for irradiating a focused ion beam on the sample held on the sample stage; a charged particle detector for detecting secondary charged particles generated from the sample by irradiation of the focused ion beam; an image display unit for displaying an observation image A in which detected intensity of the secondary charged particles is converted into luminance signals; and a plurality of conductor probe means having conductor probes for contacting with the sample and conductor probe movement mechanisms for moving the conductor probes,

wherein the conductor probe means includes:

conductor probe means being fixed relatively with respect to the focused ion beam generator; and

conductor probe means being fixed relatively with respect to the sample stage.

2. The apparatus for inspecting defects of devices according to claim 1, wherein the conductor probe means fixed relatively with respect to the focused ion beam generator can move a tip of the conductor probe in higher positioning accuracy than the conductor probe means fixed relatively with respect to the sample stage.

3. The apparatus for inspecting defects of devices according to any one of claims 1 and 2,

wherein a conductor probe movement mechanism for the conductor probe means fixed relatively with respect to the focused ion beam generator is fixed to any one of a sidewall face of the sample chamber, a ceiling face of the sample chamber and the focused ion beam generator, and

a conductor probe movement mechanism for the conductor probe means fixed relatively with respect to the sample stage is fixed to the sample stage.

4. The apparatus for inspecting defects of devices according to any one of claims 1 to 3, wherein the apparatus for inspecting defects of devices further includes a function of invariably locating the tip of the conductor probe of the conductor probe means fixed relatively with respect to the focused ion beam generator within a visual field of the observation image A.

5. The apparatus for inspecting defects of devices according to any one of claims 1 to 4, wherein the image display unit displays an inspection area image B that indicates positions of the tips of the conductor probes on the sample.

6. The apparatus for inspecting defects of devices according to claim 5, wherein mechanical contact and non-contact of the tips of the conductor probes with the sample are displayed in the inspection area image B.

7. The apparatus for inspecting defects of devices according to any one of claims 5 and 6, wherein a state of spatial interference among the plurality of conductor probes is displayed in the inspection area image B.

8. A method of inspecting defects in devices including the steps of allowing a tip of a conductor probe to contact with a point of voltage application on a device sample being held on a sample stage, irradiating a focused ion beam from a focused ion beam generator to the sample in a state that voltage is applied from the conductor probe to the sample, and detecting wiring defects based on voltage contrasts in an image taken with a scanning ion microscope by detecting secondary charged particles generated from the sample,

wherein voltage application is carried out from the conductor probe held in a position fixed relatively with respect to the focused ion beam

generator to a voltage application point necessary to be changed in relation with movement of a visual field of the scanning ion microscope, and

voltage application is carried out from the conductor probe held at the sample stage to a voltage application point not to be changed necessarily in relation with the movement of the visual field of the scanning ion microscope.

9. The method of inspecting defects in devices according to claim 8, wherein the tip of the conductor probe held in the position fixed relatively with respect to the focused ion beam generator is allowed to move as linked with the visual field of the scanning ion microscope.

10. The method of inspecting defects in devices according to any one of claims 8 and 9,

wherein the position of the tip of the conductor probe is displayed as a mark superimposed on an image with the scanning ion microscope, and

the displayed position of the mark is moved relatively to the image with the scanning ion microscope to enable the position of the tip of the conductor probe to be moved corresponding to the movement.